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COURSE CODE: CHM 102

MATRIC NO. 19/MHS02/096

DEPARTMENT: NURSING

ASSIGNMENT

1 Alcohols are very important organic compounds. Discuss briefly their classification and give one example each.

Ans

a) Classification based on the number of hydrogen atom attached to the carbon atom containing the hydroxyl group.

This can further be classified into:

i) Primary alcohols

ii) Secondary alcohols

iii) Tertiary alcohols

If there are two or three hydrogen atom attached to the carbon atom containing the hydroxyl group, it is called primary alcohol, if it is one hydrogen atom, it is called secondary alcohol and if no hydrogen atom is attached to the carbon atom bearing the hydroxyl group, it is called tertiary alcohol. E.g CH_3OH (methanol)

b) Classification based on the number of hydroxyl group they possess.

This can also be further classified into:

i) Monohydric alcohols

ii) Dihydric alcohols

iii) Trihydric alcohols

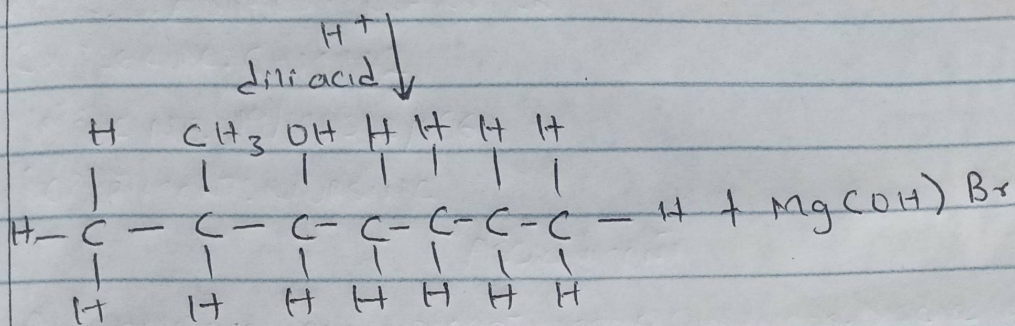
iv) Polyhydric alcohols

Monohydric alcohols have one hydroxyl group that are present in the structure. Dihydric alcohols which are also called glycols have two hydroxyl groups present in the structure. Trihydric alcohols or triols have three hydroxyl groups present in the alcohol structure. Polyhydric alcohols or polyols have more than three hydroxyl group present in the alcohol structure. E.g $\text{CH}_3\text{CH}(\text{OH})\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{CH}_3$.

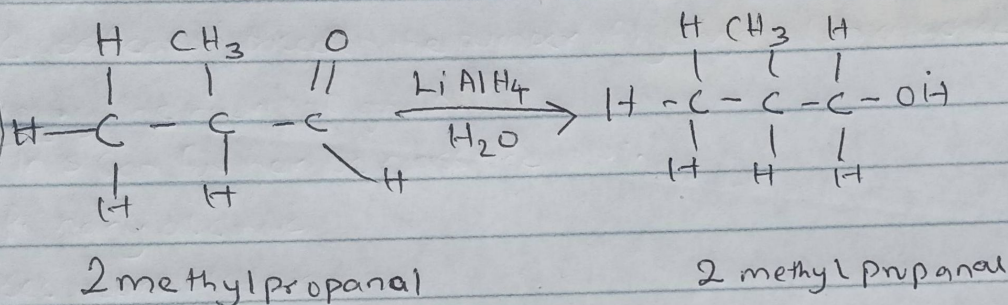
Discuss the solubility of alcohols in water, organic solvents.

Ans

Lower alcohols with up to three carbon atoms in their molecules are soluble in water because these lower alcohols can form hydrogen bond with water because



7) Show the reduction of 2-methylpropanal



8) Propose a scheme for the conversion of Propanal-1-ol to Propan-2-ol.

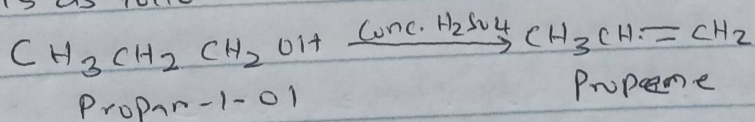
Answer:

Scheme for the Conversion of Propan-1-ol to Propan-2-ol.

a) Dehydration of Propan-1-ol to Propene

When Propan-1-ol is treated with concentrated sulphuric acid (H_2SO_4) the phenomenon called dehydration occurs due to which a water molecule from Propan-1-ol gets eliminated.

Due to this Propan-1-ol gets converted into Propene. The reaction involved is as follows.



b) Hydrolysis of Propene to Propan-2-ol

Propene can be hydrated to Propan-2-ol in accordance with mechanism called Markovnikov's reaction which states when an unsymmetrical reagent the negative part of the reagent gets attached itself to the carbon atom of the alkene which has less number of hydrogen atoms.

